REMARKS/ARGUMENTS

Brief Summary of Status

Claims 1-20 are pending in the application.

Claims 10-14 are allowed.

Claims 1, 6-9, 15, 19, and 20 are rejected.

Claims 2-5 and 16-18 are objected to.

POWER OF ATTORNEY/CORRESPONDENCE ADDRESS

(Customer Number 51472)

The Applicant is submitting herewith a new "power of attorney" that both (1) appoints practitioners associated with USPTO customer number (CN) **51472** and also (2) indicates the new correspondence address of the present U.S. utility patent application to be that which is associated with USPTO CN **51472**.

35 U.S.C. § 103

2. The Examiner asserts:

"Claims 1, 8, 9 & 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yokoyama et al. (2002/0011896) in views of Hayashi et al. (2002/0008572), as applied to claim 15 below, and Adachi (5,272,452), and further in view of Shawhan (4,019,148)." (non-final office action, Part of Paper No./Mail Date 20070424, p. 2)

7. The Examiner asserts:

"Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Yokoyama et al. (2002/0011896) in views of Hayashi et al. (2002/0008572), Adachi (5,272,452), and Shawhan (4,019,148), as applied to claim 1 above, and further in view of Kobayashi (5,550,520)." (non-final office action, Part of Paper No./Mail Date 20070424, p. 6)

8. The Examiner asserts:

"Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Yokoyama et al. (2002/0011896) in views of Hayashi et al. (2002/0008572), Adachi (5,272,452) and Shawhan (4,019,148), as applied to claims 1 & 15 above, and further in

view of Reinhardt et al. (6,198,354) (hereinafter, Reinhardt)." (non-final office action, Part of Paper No./Mail Date 20070424, p. 6)

10. The Examiner asserts:

"Claims 15 & 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yokoyama et al. (2002/0011896) in view of Hayashi et al. (2002/0008572) (hereinafter, Yokoyama and Hayashi respectively)." (non-final office action, Part of Paper No./Mail Date 20070424, p. 7)

Allowable Subject Matter

13. The Examiner asserts:

"Claims 2-5 & 16-18 are objected to as being dependent upon a rejected base claims, claims 1 & 15 respectively, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. " (non-final office action, Part of Paper No./Mail Date 20070424, p. 9)

14. The Examiner asserts:

"Claims 10-14 are allowed." (non-final office action, Part of Paper No./Mail Date 20070424, p. 9)

Remarks

35 U.S.C. § 103

2. The Examiner asserts:

"Claims 1, 8, 9 & 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yokoyama et al. (2002/0011896) in views of Hayashi et al. (2002/0008572), as applied to claim 15 below, and Adachi (5,272,452), and further in view of Shawhan (4,019,148)." (non-final office action, Part of Paper No./Mail Date 20070424, p. 2)

The Applicant respectfully traverses.

Among other deficiencies in the rejections to claims 1, 8, 9, and 19, in one portion of the above-referenced non-final office action (Part of Paper No./Mail Date 20070424), the Examiner asserts:

"Adachi teaches 'the loop filter is implemented as a LPF (Low Pass Filter) having a resistor and a capacitor connected in series such that the capacitor is shunted to ground' (see claim 19 rejection below).

It would have been obvious to one of ordinary skill in the art, at the time invention was made to implement the teachings of Adachi into Yokoyama and Hayashi in order to provide a PLL circuit capable of changing over at high speed with small fluctuations of frequency when the bandwidth of the loop filter is change over in a simple constitution (col.1, lines 34-38) as taught by Adachi. Yokoyama, Hayashi and Adachi do not teach selection of band pass filter control voltage from a node that connects the resistor and the capacitor.

Shawhan teaches, 'a BPF (Band Pass Filter) control voltage is selected from a node that connects the resistor and 'the capacitor; and wherein the BPF control voltage determines a tuning frequency of a BPF to which the PLL is communicatively coupled' (see claim 19 rejection below).

It would have been obvious to one of ordinary skill in the art, at the time of invention was made, to implement the teachings of Shawhan into Yokoyama, Hayashi & Adachi in order to insure proper phasing of the switching signal produced by a phase-locked-loop as taught by Shawhan (col. 5, lines 40-43) thereby providing a higher degree of noise rejection (col.1, lines 56-61)." (non-final office action, Part of Paper No./Mail Date 20070424, p. 3-4, emphasis added)

Also, the Examiner asserts:

"6. As per claim 19, Yokoyama and Hayashi teach all the limitations in the previous claims on which claim 19 depends but they fail to disclose series connection of resistor and capacitor.

Adachi teaches a loop filter to form a phase lock loop having a resistor and capacitor connected in series and they are shunted to ground -(figure 1, Abstract, col. 1, lines 39-52) which reads on claim limitations 'the loop filter of the PLL is implemented as a LPF (Low Pass Filter) having a resistor and a capacitor connected in series such that the capacitor is shunted to ground'.

It would have been obvious to one of ordinary skill in the art, at the time invention was made to implement the teachings of Adachi into Yokoyama and Hayashi in

order to provide a PLL circuit capable of changing over at high speed with small fluctuations of frequency when the bandwidth of the loop filter is change over in a simple constitution (col.1, lines 34-38) as taught by Adachi.

Yokoyama, Hayashi & Adachi do not teach band pass filter control voltage from a node that connects the resistor and the capacitor.

Shawhan teaches a band pass filter control voltage from a node that connects the resistor and the capacitor (figure 4, elements 172 & 174, co1.5, lines 19-31).

It would have been obvious to one of ordinary skill in the art, at the time of invention was made, to implement the teachings of Shawhan into Yokoyama, Hayashi & Adachi in order to insure proper phasing of the switching signal produced by a phase-locked-loop as taught by Shawhan (co1.5, lines 40-43) thereby providing a higher degree of noise rejection (col.1, lines 56-61)." (non-final office action, Part of Paper No./Mail Date 20070424, p. 5, emphasis added)

When considering Shawhan, the Applicant respectfully believes that the Examiner-cited portion of Shawhan do not teach and disclose "a band pass filter control voltage from a node that connects the resistor and the capacitor (figure 4, elements 172 & 174, co1.5, lines 19-31)" such that the "resistor and the capacitor" have the same characteristics as those within the Applicant's independent claim 1 or the other of the claims 8, 9 & 19.

Shawhan provides great detail regarding the connection and signal provided to the "BPF 174" therein, and the signal provided to the "BPF 174" is not from a "a node that connects the resistor and the capacitor" such that the "a node that connects the resistor and the capacitor" is part of a "loop filter implemented as a LPF" in accordance with the subject matter as claimed by the Applicant.

With respect to the signal provided to the "BPF 174" (which is one of the elements the Examiner cites above), Shawhan teaches and discloses:

"The signal derived between resistors 162 and 164 first enters a voltage follower 172 of conventional design using an operational amplifier 182 having a zero resistance feedback loop. Voltage follower 172 provides the high input impedance necessary to prevent drainage of capacitors 154 and 156 and the low output impedance necessary to

drive a band pass filter 174 into which the signal then passes." (Shawhan, col. 5, lines 11-18, emphasis added).

The Applicant respectfully points out that the Examiner-cited element 172 of Shawhan is not a "loop filter implemented as a LPF" in accordance with the subject matter as claimed by the Applicant, but rather a "voltage follower 172 of conventional design".

The Applicant respectfully believes that Shawhan does not teach and disclose that the "voltage follower 172 of conventional design" is a "LPF" in accordance with the subject matter as claimed by the Applicant.

As can be seen in FIG. 4 of Shawhan, and as also described by Shawhan, the "Voltage follower 172 provides the high input impedance necessary to prevent drainage of capacitors 154 and 156 and the low output impedance necessary to drive a band pass filter 174 into which the signal then passes".

Shawhan goes into great detail to provide information to the reader as to why the "voltage follower 172 of conventional design" is employed to provide the signal to the "band pass filter 174" (i.e., it "provides the high input impedance necessary to prevent drainage of capacitors 154 and 156 and the low output impedance necessary to drive a band pass filter 174").

In an Examiner-cited portion of Shawhan, Shawhan teaches and discloses:

"Band pass filter 174 is of the active variety that utilizes an operational amplifier 184. The signal enters filter 174 from voltage follower 172 through a resistor 186. A capacitor 188 is connected between one input of amplifier 184 and resistor 186. The other input of amplifier 184 is grounded. A resistor 190 connects between ground potential and resistor 186. A portion of the signal exiting from amplifier 184 is fed back through a capacitor 192 to a node between resistors 186 and 190 and capacitor 188, and another portion is fed into the non-grounded input of amplifier 184. This type of filter is well known in the art and is described in detail in "Operational Amplifiers" by Burr-Brown."(Shawhan, col. 5, lines 19-31, emphasis added).

The Applicant respectfully points out that there is in fact a "capacitor 188 [that] is connected between one input of amplifier 184 and resistor 186", but this "capacitor 188"

is not "shunted to ground" in accordance with the subject matter as claimed by the Applicant.

Rather, FIG. 4 of Shawhan depicts, and Shawhan also describes that the "signal enters filter 174 from voltage follower 172 through a resistor 186", and a "resistor 190 connects between ground potential and resistor 186".

As can be seen also when viewing FIG. 4 of Shawhan, it is not the "capacitor 188" that is shunted to ground, but rather the "resistor 190 [that] connects between ground potential and resistor 186".

The Applicant respectfully points out that Shawhan does in fact teach and disclose another embodiment that includes a "LO PASS 104" and a "BAND PASS 108" in a single embodiment (i.e., "FIG. 3 is a schematic diagram of a noise rejection circuit that may be used in an acoustical telemetry system of FIG. 2;").

However, it is not the output of the "LO PASS 104" (or any node thereof) that is coupled to the "BAND PASS 108" in FIG. 3 of Shawhan. This implementation of Shawhan (that includes both a "LO PASS 104" and a "BAND PASS 108" in a single embodiment) is not in accordance with the subject matter as claimed by the Applicant.

There is only a single paragraph within Shawhan that the Applicant can find any reference to the "LO PASS 104".

Shawhan teaches and discloses:

"The noise rejection circuit is shown in block diagram form in FIG. 3. The signal is detected in the drill string by a sound pickup 100 and is amplified by a pre-amplifier 102 to raise the signal voltage level above electrical noise on a cable 101 that interconnects the circuit components. Cascaded low-pass and high-pass filters 104 and 106 reduce the noise outside the frequency range to be covered, e.g., 860 Hz to 1280 Hz. A band pass filter 108 selects the particular band desired for a particular repeater or surface receiver from this range." (Shawhan, col. 3, lines 56-66, emphasis added).

The operation of the "Cascaded low-pass and high-pass filters 104 and 106 reduce the noise outside the frequency range to be covered" in accordance with the teaching and disclosure of Shawhan.

The Applicant respectfully believes that Shawhan fails to teach and disclose "a BPF (Band Pass Filter) control voltage [that] is selected from a node that connects the

resistor and the capacitor" such that the "loop filter is implemented as a LPF (Low Pass Filter) having a resistor and a capacitor connected in series such that the capacitor is shunted to ground" in accordance with the subject matter as claimed by the Applicant.

The Applicant respectfully believes that the other references of Yokoyama et al. (2002/0011896) in views of Hayashi et al. (2002/0008572), as applied to claim 15 below, and Adachi (5,272,452) fail to overcome at least these deficiencies of Shawhan.

With respect to FIG. 1 of Yokoyama (which the Examiner identifies also in rejecting independent claim 1), the Applicant respectfully points out that there is only one signal output from the "PLL CIRCUIT 50" therein, and this is "REFERENCE SIGNAL".

There is in fact a signal, as the Examiner suggests, provided to "a receiver section 10 for a telecommunications unit [that] includes a gm-C filter 11" (see Yokoyama, [0023]), but this signal is provided from a "test signal generator 32" that is itself part of a "characteristic tuner 30".

Yokoyama teaches and discloses:

"In accordance with a tuning instruction issued from the microcomputer 20, the test signal generator 32 is started so as to generate a test signal from the clock signal with the divided frequency and then supplies the test signal to the gm-C filter 11. This test signal may be of any type (e.g., an impulse signal, pulse signal or step signal) so long as the signal contains a component corresponding to the center frequency f.sub.0 of the gm-C filter 11. An impulse signal is particularly preferred because an impulse signal contains sine wave components for all frequencies. In response to the test signal, an oscillating waveform with the frequency f.sub.0 appears at the output of the gm-C filter 11. Synchronously with the rise of the clock signal that has been delivered as a reference signal from the PLL circuit 50, the counter 33 measures one or some periods of the oscillating waveform appearing at the output of the gm-C filter 11. Based on the measurement result obtained by the counter 33, the frequency detector 34 detects the center frequency f.sub.0 of the gm-C filter 11 and passes a frequency difference .DELTA.f, i.e., the difference between the center and target frequencies f.sub.0 and f.sub.0t, to the up/down counter 35. The up/down counter 35 changes its digital output value as will be described later." (Yokoyama, [0024], emphasis added).

Clearly, it is the "the test signal generator 32 [that] is started so as to generate a test signal from the clock signal with the divided frequency and then supplies the test signal to the gm-C filter 11", and there is no teaching and disclosure of "a BPF (Band Pass Filter) control voltage [that] is selected from a node that connects the resistor and the capacitor" such that the "loop filter is implemented as a LPF (Low Pass Filter) having a resistor and a capacitor connected in series such that the capacitor is shunted to ground" in accordance with the subject matter as claimed by the Applicant.

There are a number of other modules and processes that operate on the "REFERENCE SIGNAL" provided from the PLL circuit 50 (which is itself output from the "VCO 55" of the "PLL circuit 50", and not from the "LPF 54" of the "PLL circuit 50") before "the test signal generator 32 is started so as to generate a test signal from the clock signal with the divided frequency and then supplies the test signal to the gm-C filter 11".

Also, the Applicant respectfully points out that Yokoyama teaches and discloses that "In response to the test signal, an oscillating waveform with the frequency f.sub.0 appears at the output of the gm-C filter 11" (as cited above from Yokoyama); in other words, it is "In response to the test signal [that] an oscillating waveform with the frequency f.sub.0 appears at the output of the gm-C filter 11".

The Applicant respectfully points out that the "controlling" signal that seems to govern the "gm-C filter 11" of Yokoyama seems to be the "test signal" provided by the "test signal generator 32", and this "test signal" is itself provided "In accordance with a tuning instruction issued from the microcomputer 20".

The Applicant respectfully believes that the "controlling" signal that seems to govern the "gm-C filter 11" of Yokoyama is not "a BPF (Band Pass Filter) control voltage [that] is selected from a node that connects the resistor and the capacitor" in a "PLL" such that the "PLL" has a "loop filter is implemented as a LPF (Low Pass Filter) having a resistor and a capacitor connected in series such that the capacitor is shunted to ground" in accordance with the subject matter as claimed by the Applicant.

The Applicant respectfully points out that it seems to be the "tuning instruction issued from the microcomputer 20" that seems to be the initializing signal within FIG. 1 of Yokoyama that eventually precipitates the eventual "controlling" "test signal" that

seems to govern the "gm-C filter 11", and this "microcomputer 20" does not appear to have any connectivity whatsoever to the "PLL circuit 50" of Yokoyama.

As such, the Applicant respectfully believes that it does not even appear that it is the "PLL circuit 50" that provides any "controlling" signal that seems to govern the "gm-C filter 11" of Yokoyama.

In other words, the Applicant respectfully believes that Yokoyama fails to a teach and disclose a "PLL" "wherein a BPF (Band Pass Filter) control voltage is selected from a node that connects the resistor and the capacitor" such that the "PLL" includes a "loop filter [that] is implemented as a LPF (Low Pass Filter) having a resistor and a capacitor connected in series such that the capacitor is shunted to ground" in accordance with the subject matter as claimed by the Applicant in independent claim 1.

In addition, the Applicant respectfully believes that Yokoyama fails to a teach and disclose at least the limitations of "selecting an BPF control voltage from a loop filter of the PLL; and providing the selected BPF control voltage from the loop filter of the PLL to the BPF thereby tuning the BPF to operate at its center frequency" in accordance with the subject matter as claimed by the Applicant in independent claim 15.

The Applicant respectfully also believes that the other references of Hayashi et al. (2002/0008572), as applied to claim 15 below, and Adachi (5,272,452), and further in view of Shawhan (4,019,148) fail to overcome at least these deficiencies of Yokoyama.

For at least the reasons and comments provide herein by the Applicant that the independent claims 1 and 15 are allowable over Yokoyama et al. (2002/0011896) in views of Hayashi et al. (2002/0008572), as applied to claim 15 below, and Adachi (5,272,452), and further in view of Shawhan (4,019,148).

Moreover, the Applicant respectfully believes that independent claims 1 and 15 are allowable over Yokoyama et al. (2002/0011896) in views of Hayashi et al. (2002/0008572), as applied to claim 15 below, and Adachi (5,272,452), and further in view of Shawhan (4,019,148).

The Applicant also respectfully believes that dependent claims 8 and 9, being a further limitation of the subject matter as claimed in an allowable independent claim, is also allowable.

As such, in light of at least these comments made above, the Applicant respectfully requests that the Examiner withdraw the rejection of claims 1, 8, 9 & 19 under 35 U.S.C. § 103(a) as being unpatentable over Yokoyama et al. (2002/0011896) in views of Hayashi et al. (2002/0008572), as applied to claim 15 below, and Adachi (5,272,452), and further in view of Shawhan (4,019,148).

7. The Examiner asserts:

"Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Yokoyama et al. (2002/0011896) in views of Hayashi et al. (2002/0008572), Adachi (5,272,452), and Shawhan (4,019,148), as applied to claim 1 above, and further in view of Kobayashi (5,550,520)." (non-final office action, Part of Paper No./Mail Date 20070424, p. 6)

The Applicant respectfully traverses.

The Applicant respectfully believes that the inclusion of Kobayashi fails to overcome the deficiencies of the other Examiner-cited references as also described above by the Applicant.

Moreover, the Applicant respectfully believes that independent claim 1 is allowable over Yokoyama et al. (2002/0011896) in views of Hayashi et al. (2002/0008572), Adachi (5,272,452), and Shawhan (4,019,148), as applied to claim 1 above, and further in view of Kobayashi (5,550,520).

The Applicant also respectfully believes that dependent claim 6, being a further limitation of the subject matter as claimed in an allowable independent claim, is also allowable.

As such, in light of at least these comments made above, the Applicant respectfully requests that the Examiner withdraw the rejection of claim 6 under 35 U.S.C. § 103(a) as being unpatentable over Yokoyama et al. (2002/0011896) in views of Hayashi et al. (2002/0008572), Adachi (5,272,452), and Shawhan (4,019,148), as applied to claim 1 above, and further in view of Kobayashi (5,550,520).

8. The Examiner asserts:

"Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Yokoyama et al. (2002/0011896) in views of Hayashi et al. (2002/0008572), Adachi (5,272,452) and Shawhan (4,019,148), as applied to claims 1 & 15 above, and further in view of Reinhardt et al. (6,198,354) (hereinafter, Reinhardt)." (non-final office action, Part of Paper No./Mail Date 20070424, p. 6)

The Applicant respectfully traverses.

The Applicant respectfully believes that the inclusion of Reinhardt fails to overcome the deficiencies of the other Examiner-cited references as also described above by the Applicant.

Moreover, the Applicant respectfully believes that independent claim 1 is allowable over Yokoyama in view of Hayashi, Adachi (5,272,452) and Shawhan (4,019,148), as applied to claims 1 & 15 above, and further in view of Reinhardt.

The Applicant also respectfully believes that dependent claim 7, being a further limitation of the subject matter as claimed in an allowable independent claim, is also allowable.

As such, in light of at least these comments made above, the Applicant respectfully requests that the Examiner withdraw the rejection of claim 7 under 35 U.S.C. § 103(a) as being unpatentable over Yokoyama in view of Hayashi, Adachi (5,272,452) and Shawhan (4,019,148), as applied to claims 1 & 15 above, and further in view of Reinhardt.

10. The Examiner asserts:

"Claims 15 & 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yokoyama et al. (2002/0011896) in view of Hayashi et al. (2002/0008572) (hereinafter, Yokoyama and Hayashi respectively)." (non-final office action, Part of Paper No./Mail Date 20070424, p. 7)

The Applicant respectfully traverses.

The comments made above with respect to Yokoyama are also applicable here.

Moreover, as also provided above, the Applicant respectfully believes that Yokoyama fails to a teach and disclose at least the limitations of "selecting an BPF control voltage from a loop filter of the PLL; and providing the selected BPF control

voltage from the loop filter of the PLL to the BPF thereby tuning the BPF to operate at its center frequency" in accordance with the subject matter as claimed by the Applicant in independent claim 15.

The Applicant respectfully believes that independent claim 15 is allowable over Yokoyama et al. (2002/0011896) in view of Hayashi et al. (2002/0008572) (hereinafter, Yokoyama and Hayashi respectively).

The Applicant also respectfully believes that dependent claim 20, being a further limitation of the subject matter as claimed in an allowable independent claim, is also allowable.

As such, in light of at least these comments made above, the Applicant respectfully requests that the Examiner withdraw the rejection of claims 15 and 20 under 35 U.S.C. § 103(a) as being unpatentable over Yokoyama in view of Hayashi.

Allowable Subject Matter

13. The Examiner asserts:

"Claims 2-5 & 16-18 are objected to as being dependent upon a rejected base claims, claims 1 & 15 respectively, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. " (non-final office action, Part of Paper No./Mail Date 20070424, p. 9)

14. The Examiner asserts:

"Claims 10-14 are allowed." (non-final office action, Part of Paper No./Mail Date 20070424, p. 9)

The Applicant respectfully believes that independent claims 1 and 15 are allowable at least in view of the comments made above.

As such, the Applicant respectfully believes that claims 2-5 & 16-18, being further limitations of the subject matter as claimed in independent claims 1 and 15, are also allowable.

Therefore, the Applicant respectfully requests that the Examiner withdraw the objections to claims 2-5 & 16-18.

Moreover, the Applicant respectfully agrees with the Examiner that claims 10-14 are allowable.

POWER OF ATTORNEY/CORRESPONDENCE ADDRESS

(Customer Number 51472)

Again, the Applicant respectfully points out that the Applicant is also submitting a new "power of attorney" herewith that both (1) appoints practitioners associated with USPTO customer number (CN) **51472** and also (2) indicates the new correspondence address of the present U.S. utility patent application to be that which is associated with USPTO CN **51472** (which is also listed below):

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The Applicant respectfully believes that claims 1-20 are in condition for allowance and respectfully requests that they be passed to allowance.

The Examiner is invited to contact the undersigned by telephone or facsimile if the Examiner believes that such a communication would advance the prosecution of the present U.S. utility patent application.

RESPECTFULLY SUBMITTED,

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